IBM

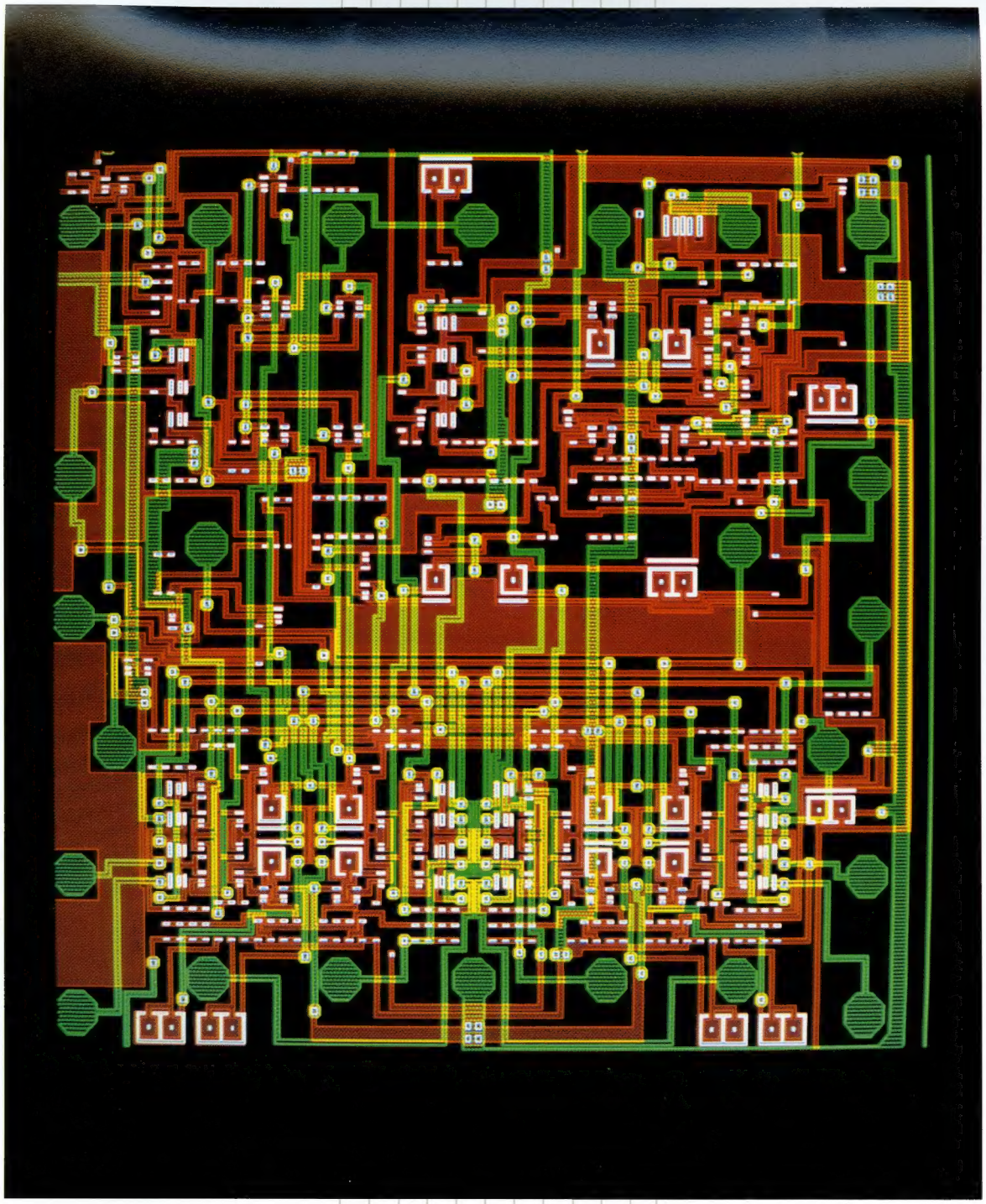
The IBM 3270 Personal Computer

Graphics Workstations

3270-PC

Solving problems

the graphics way



Graphics productivity on your desktop

Graphics and computers have been used together for many years. For example, computer-aided graphics have provided the engineering, scientific and business community with tools that enhance the design process, improve production schedules and assist in the analysis of complex data with more direct and meaningful results. IBM has been involved in graphics computer systems for over 20 years; and many of these systems combine our most powerful computers with sophisticated graphics terminals for special-purpose application needs. More recently there has been a trend toward smaller graphics systems which can be used by the professional for general-purpose applications.

Now, IBM has introduced a new family of graphics workstations based on the 3270 Personal Computer. These workstations have been designed to build on our past graphics experience and to look toward the future by providing both a design for growth and a new level of flexibility. They extend the IBM workstation family with high-resolution interactive graphics displays. This combination of graphics intelligence at the workstation—while maintaining a close affinity with a host computer via 3270 communications—creates a line of graphics products with a variety of options at your disposal.

Uses for the IBM 3270-PC graphics workstations run the gamut from business graphics to product design graphics and standalone personal computer graphics with high-resolution color displays. The versatility of these workstations can be appreciated by recognizing the success of the IBM Personal Computer as a general-purpose workstation, and expanding that view to include state-of-the-art color graphics and multiwindow support for handling concurrent host sessions.

3270-PC graphics family

The expanded line of 3270-PC graphics workstations offers you a wide range of hardware and software products which can be configured to meet your specific graphics needs. You can now choose from three 3270-PC workstations and a variety of input/output devices that allow you to interact with the screen graphics and create hard copy on paper or foils. Each workstation is designed to provide a different level of graphics capability to match the performance you require at a price which can be easily justified by the function delivered.

3270-PC workstation

The IBM 5271 Models 2, 4 and 6 have been enhanced to offer optional programmed symbol graphics features. With these features, the IBM 5272 Color Display can be used to display output from all the current 3279 graphics application programs running on System/370 hosts.

The 3270-PC workstation models with programmed symbols graphics come with a built-in 256KB or 320KB user

memory, a 14-inch, 2,000-character 5272 Color Display, and a 122-key keyboard. Depending on the model, you can have a minimum 256KB or 320KB user memory, one or two 360KB diskette drives, or a diskette drive and a 10-megabyte fixed disk drive.

The images on the IBM 5272 are presented on a 720 by 350 grid of points. The images are distortion-free, and the screen itself is antiglare. The display is mounted on a tilt-and-swivel base so that you can adjust it conveniently.

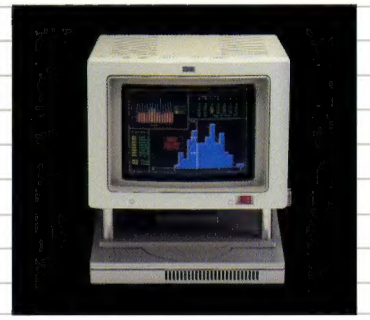
The multifaceted capabilities of this entry graphics workstation make it a superb workstation for a user who wants to work with several interactive applications concurrently and who, at times, also requires a personal computing facility. This includes executives, business professionals, data processing professionals, and other technical professionals currently working with 3279 color display applications in all types of industries.

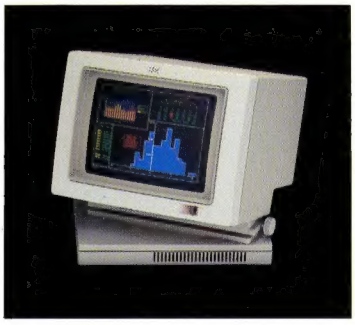
3270-PC Graphics Workstation

(3270-PC/G)

The next step up in graphics function is provided by three new 5371 System Units, Models 12, 14 and 16, which offer connections for high-resolution, all-points-addressable displays. These workstations operate in an interactive mode with a mouse or a tablet. In addition to the multiwindow host sessions, there is also a local graphics session which can operate concurrently under the new graphics control program in the workstation.

The 3270-PC/G graphics workstation models come with a built-in 384KB, 512KB or 576KB user memory, a 14-inch, 3,920-character IBM 5279 Color Display, and a 122-key keyboard in either standard or APL versions. Depending on the model, you can have a minimum of 384KB, 512KB or 576KB user memory, one or two 360KB diskette drives, or a diskette drive and a 10-megabyte fixed disk drive.





The pictures on the IBM 5279 are presented within 720 by 512 addressable points in eight colors. The pictures are distortion-free, and the screen has an anti-glare coating as well as high brightness to minimize reflections. The display itself is mounted on a tilt-and-swivel base and also has an optional height adjustment for operator convenience.

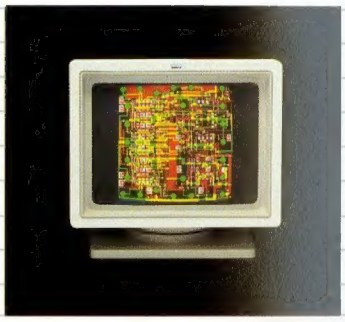
The 5278 Display Attachment Unit in this workstation provides the alphanumeric and graphics processing functions, plus the buffer storage necessary for driving the all-points-addressable 5279 Color Display. Some of the functions performed by this unit in conjunction with other workstation elements and the Graphics Control Program are:

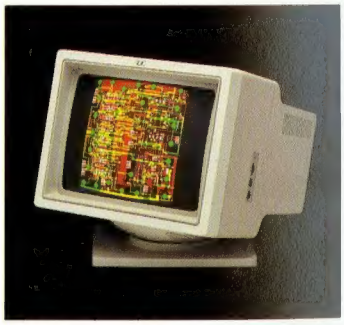
- Vector-to-raster conversion
- Two-dimensional transforms
- Scaling and clipping
- Correlation of cursor position with picture elements for interactivity
- Area color fill
- Arc and fillet generation
- 3270 character buffer emulation with capacity of either 2,560 or 3,920 characters
- IBM Personal Computer Color Graphics Adapter emulation

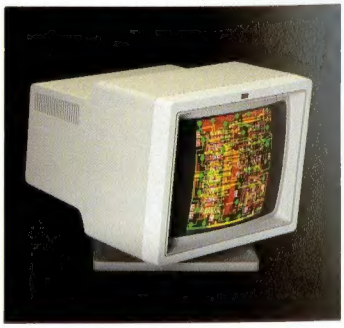
With excellent graphics resolution and vector-to-raster conversion capability built into the display logic, this workstation provides the user with highly interactive graphics capability. For the business and technical professionals who have requirements beyond the graphics capability of the 3279 display and who want an IBM Personal Computer, the answer is here.

3270-PC Extended Graphics Workstation

(3270-PC/GX)

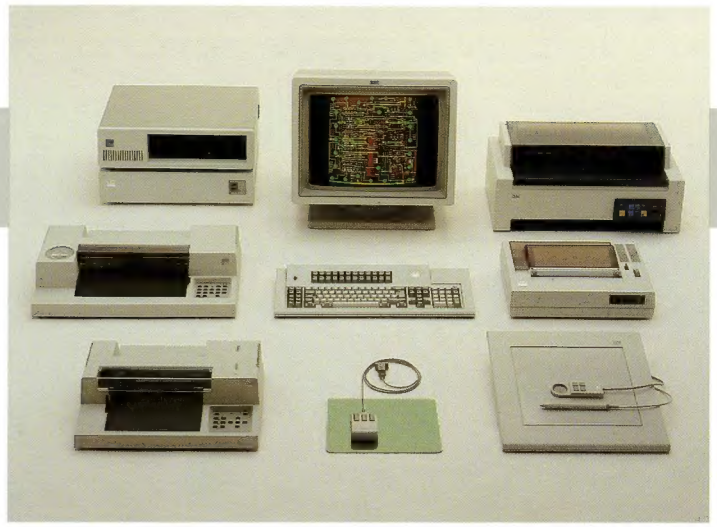


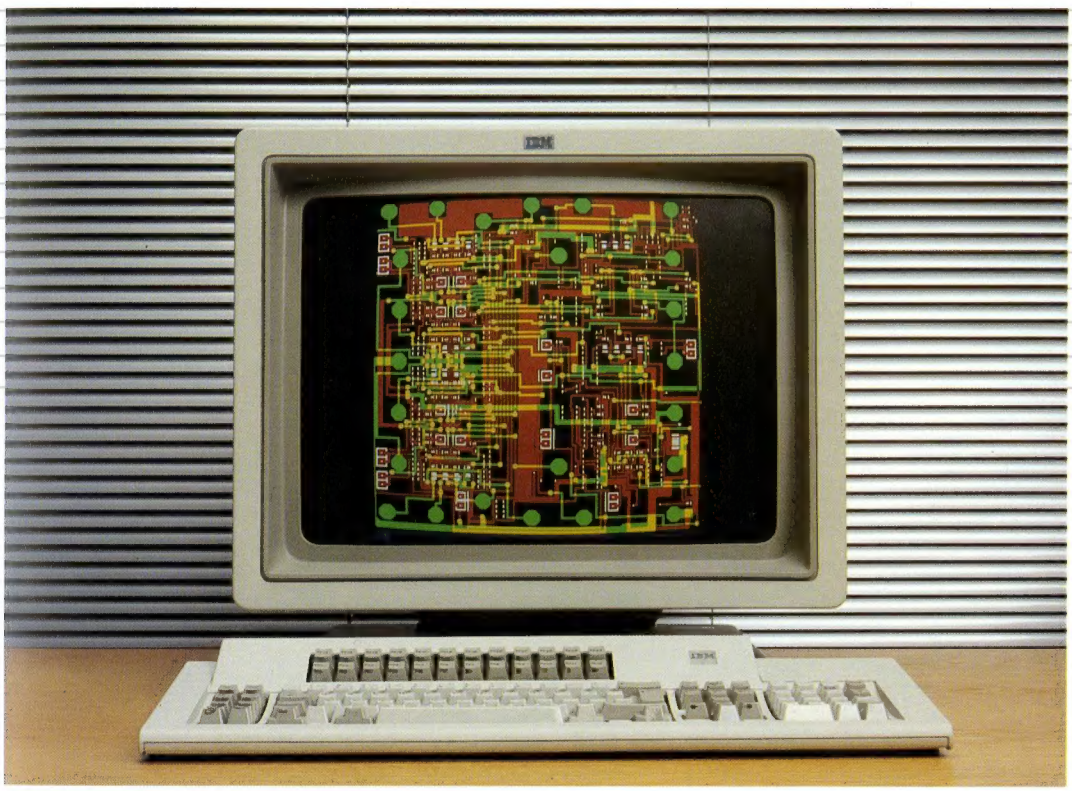


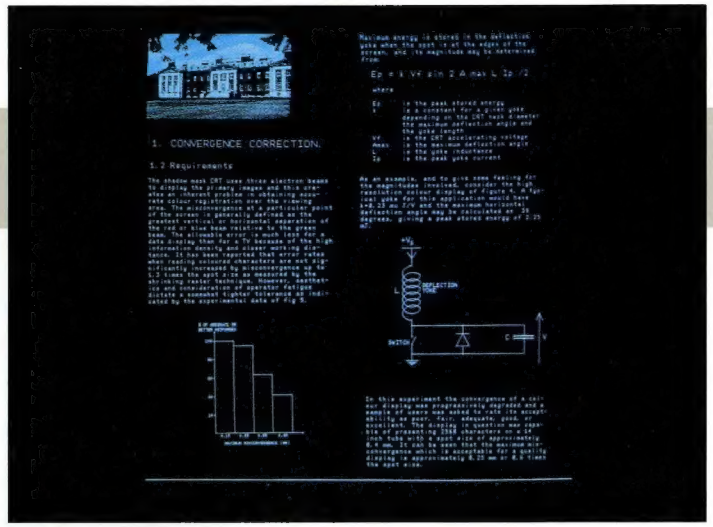


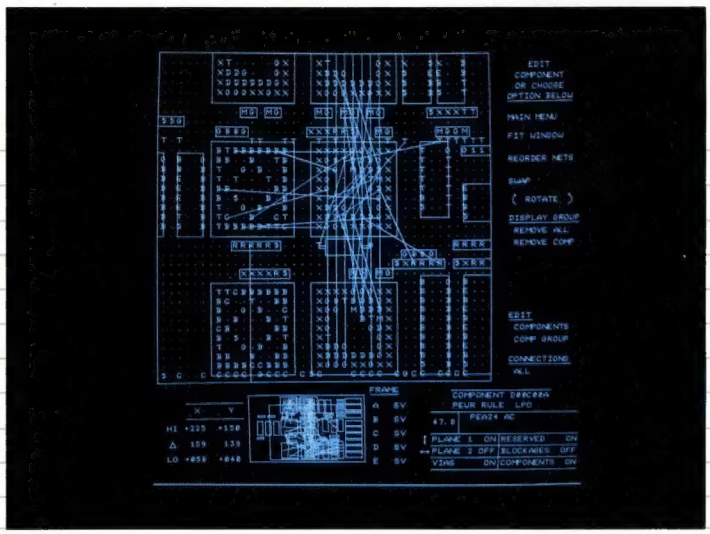
Moving even further up the spectrum of high-function workstations, IBM offers you all the features of the 3270-PC graphics family previously discussed, plus a large screen and a very high-resolution display. The 5371 System Unit Models 12, 14 and 16 are also used as the basic building blocks for these workstations.

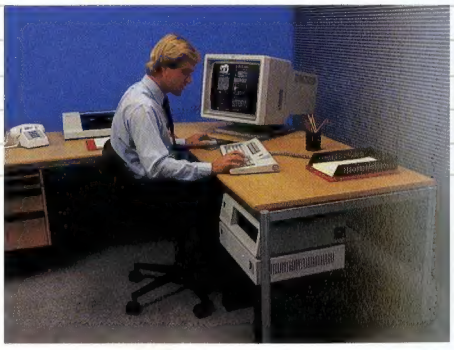
The 3270-PC/GX models come with a built-in 384KB, 512KB or 576KB user memory, a 19-inch, 4,000-character IBM 5379-C01 Color Display (up to 12,000 characters can be specially programmed to be shown on the IBM 5379-M01 Monochrome Display), and a 122-key keyboard in a standard or APL version. Depending on the model, you can have a minimum of 384KB, 512KB or 576 KB user memory, one or two 360KB diskette drives, or a diskette drive and a 10-megabyte fixed disk drive.











The pictures on the IBM 5379 color and monochrome displays are presented on 960 by 1,000 user-accessible points. In graphics mode, each picture element can be displayed in any one of 16 colors on the color display. The images are distortion-free and the screen has an anti-reflective front screen coating which, together with high brightness, minimizes glare and reflections. The display has an integrated tilt-and-swivel base so that you can adjust it conveniently.

This versatile workstation also includes the IBM 5378 Display Attachment Unit Models C01 or M01. This unit has a powerful graphics processor which provides higher performance than the 5278 Display Attachment Unit. It also provides the alphanumeric, graphics and image processing functions, and buffer storage necessary for vector lists, standard, and user-defined characters.

The specific graphics functions include:

- High-speed vector-to-raster conversion
- Two- and three-dimensional transforms
- Scaling, clipping and rotating picture elements
- Correlation of cursor position with picture elements for interactivity
- Area and pattern fill

The character-handling functions include:

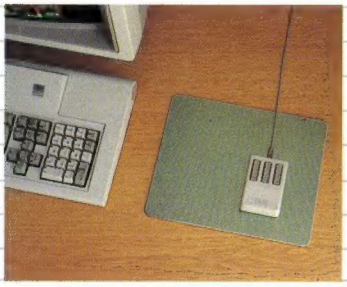
- Programmable character generation to enable you to create your own vector or image definitions for any character
- 3270 character buffer emulation with a capacity for 4,000 characters
- IBM Personal Computer Color Graphics Adapter emulation

Another option for the user who needs the complete screen area of the 5379 for graphics is the addition of the IBM 5151 Monochrome Display as a second screen to hold the alphanumeric content of the application.

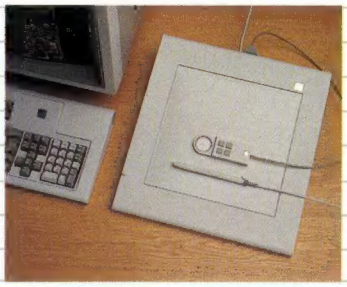
Thus, you can readily appreciate that this workstation provides an abundance of graphics functions waiting to be put to productive use in your highly skilled user departments. The right combination of local picture manipulation on a large screen, optimized host communications, and IBM Personal Computer capability make this workstation a truly outstanding tool to help the people in your organization solve their most complex problems.

Interactive devices

IBM 5277 Mouse



IBM 5083 Tablet Model 2



IBM 5371 Keyboard

High-productivity graphics applications must involve the user in a highly interactive dialog. The rapid feedback from the user to the screen image to invoke a change governs the viability of the whole approach. For the 3270-PC/G (Graphics) and 3270-PC/GX (Extended Graphics) workstations, two alternative devices are offered to provide this interactive flexibility.

The IBM 5277 Mouse is an easy-to-use device for controlling the position of the graphics cursor on the display screens. The user controls the graphics cursor by moving the mouse on a thin pad, and can initiate an action by pressing one of the three keys on the mouse. As the mouse moves, it optically scans a pattern printed on the pad and sends movement coordinates through a cable connected to the 5371 System Unit.

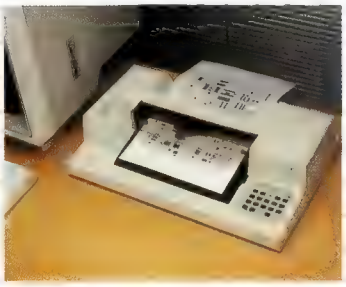
The IBM 5083 Tablet Model 2 is, by design, a higher precision cursor positioning device. The tablet has a choice of two user-controlled inputs. The cursor feature offers users a convenient, hand-held "mouse-shaped" unit with four buttons for application use, and a fine cross hair for precise alignment and accurate digitizing of any type of drawing placed on the tablet surface. The stylus feature provides a pen-like device for user interaction. The tactile feedback from pressing the stylus tip on the tablet assures the user that a selection has been made.

On all the 3270-PC graphics family workstations, the 122-key keyboard—arranged in five major groups—is designed to provide you with a user-friendly interface to the alphanumeric functions. It is attached to the workstation with a flexible coiled cord so that you can place it in a convenient location. Extensive online "help" facilities are available right from the keyboard. There's even an online tutorial which can assist you in learning the wide range of capabilities of these graphics workstations. Another productivity feature is the autokey facility which can record, save and later play back often-used keystroke entries. This reduces the number of keystrokes and partially automates repetitive procedures.

Output devices

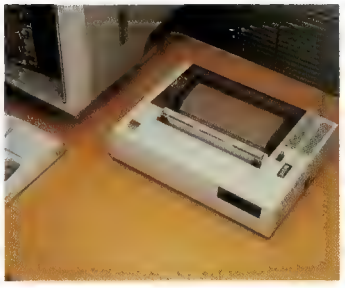
IBM 7371 Color Plotter

IBM 7372 Color Plotter



IBM 5182 Color Printer

IBM 3852 Color Printer



Graphics applications demand graphics output in hard copy form. It is not sufficient just to provide highly interactive graphics displays. The user usually wants to obtain a copy of the final product—business chart, drawing or map.

IBM is able to offer an impressive array of output devices to create graphics output, since all the interfaces for the IBM Personal Computer are available on these workstations.

For plotters, there are two interface options, the RS-232C and the IEEE 488. The following plotters can be attached through these interfaces:

- IBM 7371 Color Plotter (2-pen desktop)
- IBM 7372 Color Plotter (6-pen desktop)
- IBM 7374 Color Plotter (8-pen floor model)
- IBM 7375 Color Plotter (8-pen floor model)

The desktop plotters are also convenient for making color foils.

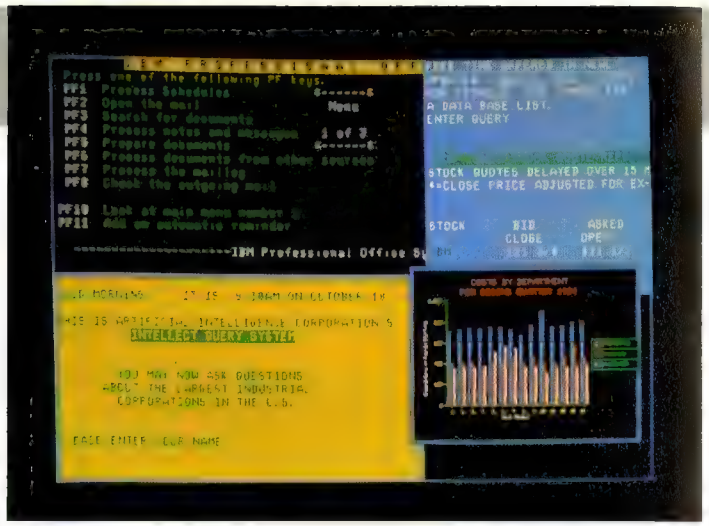
For printers, the IBM PC parallel printer interface is available. The following all-points-addressable printers provide graphics output where the high resolution of plotters is not required:

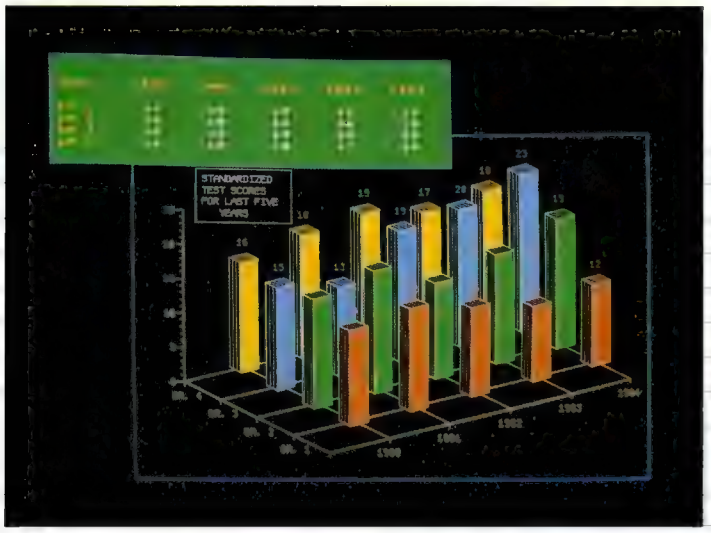
- IBM 5152 Graphics Printer
- IBM 5182 Color Printer (ribbon)
- IBM 3852 Color Printer (ink jet)

The IBM 3852 Color Printer is also capable of producing color foils.

In addition, the 3268 Model 2C and the 3287 Model 2C also provide color graphics printing capability. These printers are controlled by the host and attach to the 3274 Display Control Unit.

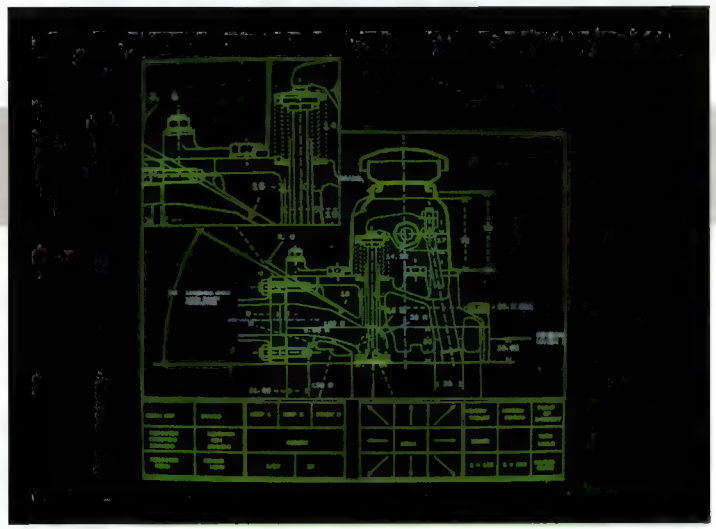
Graphics software support

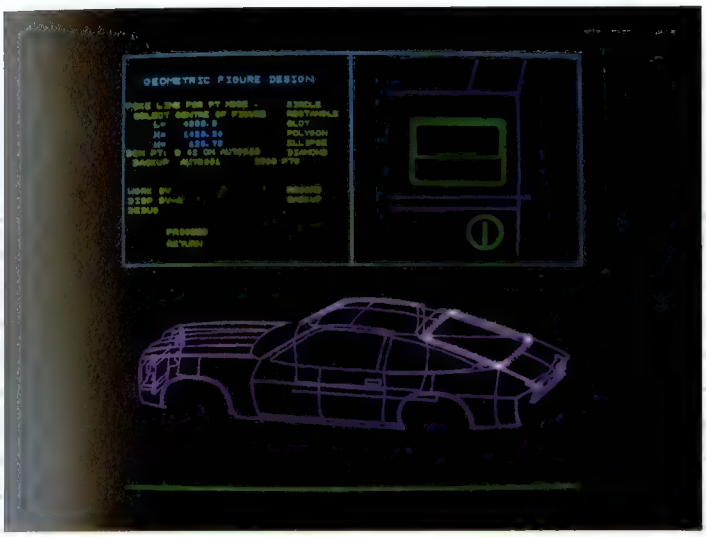


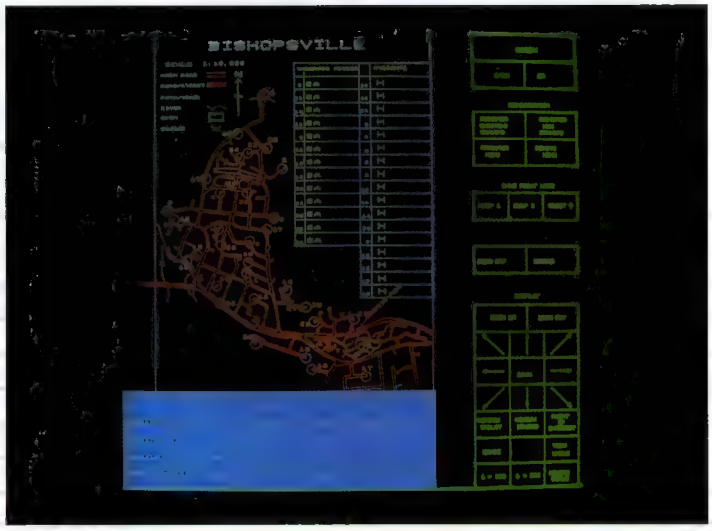


To support these new graphics workstations, IBM offers software products at both the host and the workstation level. The Graphical Data Display Manager (GDDM) Release 4 provides graphics device support in the host, while the Graphics Control Program (GCP) is provided to run at the workstations with the 5279 and 5379 displays. The 3270-PC Control Program is provided for workstations using the 5272 Color Display.

When using the 5379 displays, the graphics data can be separated from the alphanumeric data for a particular host session. The graphics data is displayed on the 5379 and the alphanumeric data is displayed on the 5151 Monochrome Display to provide a two-screen approach which has proved to be productive for many applications with high graphics screen content. GCP also provides an alternative programming interface—Graphics Procedure Interface (GPI)—for IBM PC DOS 2.1 applications to provide access to graphics functions.







Graphical Data Display Manager (GDDM)

Designed specifically for computer graphics applications, GDDM reduces the complexity for the user who is creating screen, printer and plotter layouts. These layouts might include colorful text, image and graphics information, while facilities include alphanumerics, graphs and charts, special character sets, symbols and fonts.

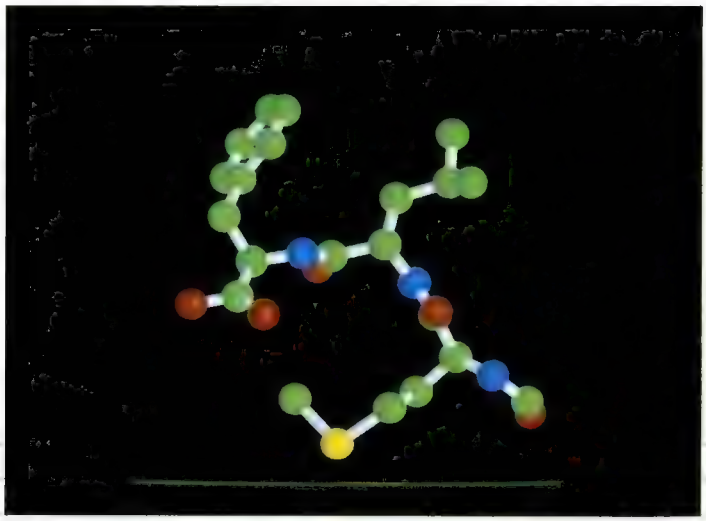
GDDM Release 4 provides the host interface for all graphics applications. GDDM takes advantage of the device intelligence of the 3270-PC/G and 3270-PC/GX with the tablet and mouse as interactive devices to reduce the host computation load. GDDM will send vector list descriptions of pictures to these workstations, while recognizing the need to send programmed symbols to the 3270-PC workstations with 5272 displays. GDDM directly supports workstation-attached plotters.

End users and applications can benefit from new chart types and additional functions in the Presentation Graphics Feature's Interactive Chart Utility program.

Graphics Control Program (GCP)

GCP provides the 3270-PC/G and 3270-PC/GX workstations with the controls to allow the user to select screen configurations, manipulate and interact with displayed alphanumeric and graphics data, and manage screen presentations. With GCP's multiple screen management capabilities, you can view up to seven sessions simultaneously through "windows" that can be located anywhere on the screen. These windows can vary in size up to the point of taking up the entire screen for dedicated applications as your needs dictate. You can also change the colors of the graphics, characters and background for each of the application windows. There can be up to four host interactive sessions, two local notepad sessions, and one IBM PC DOS 2.1 session on the display screen.

Graphics environments



The IBM 3270 Personal Computer graphics workstation family offers new flexibility of function in a desktop system. This graphics power, combined with 3270-PC capabilities, is waiting to be put to productive use in many areas of your business.

Graphics-intensive applications are developing new approaches to solving problems in all industries. The following starter list suggests where these general-purpose graphics workstations can be merged with your requirements:

- Business charting
- Presentation preparation
- Engineering/scientific analysis
- Flowcharts
- Electronic circuit design
- Product design
- Mapping
- Facilities layout
- Microchip layout
- Page layout/text and graphics
- Technical documentation
- Image viewing

Think in terms of the right combination of standalone graphics capability and host interaction to meet the various application needs of your most sophisticated users, while providing ease of use to encourage others in your organization to discover the many benefits of computer graphics. Contact your IBM marketing representative for further information and to see a demonstration of the IBM 3270-PC graphics workstations.

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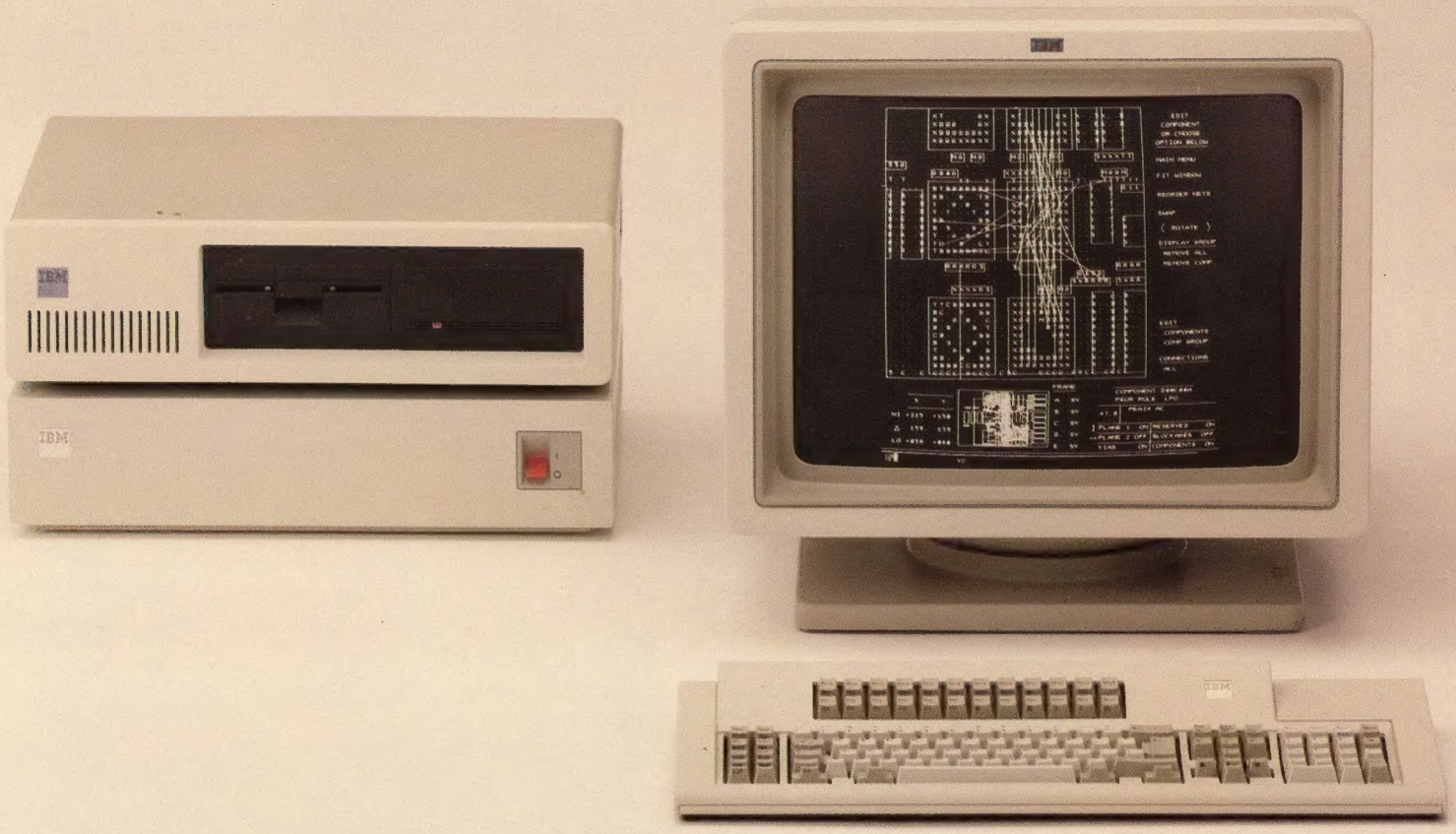
GV21-0028 Design Model IBM 3270-PC/G Graphics Workstation



GV21-0032 Design Model IBM 3270-PC/GX Extended Graphics Workstation — Monochrome Display